

ABSTRACT

[0050] In one embodiment, the invention is a guard ring for reducing particle entrapment along a moveable shaft of a substrate support. In one embodiment, the guard ring comprises a substantially annular guard ring positioned within a step formed in a sleeve that circumscribes the shaft. The guard ring is positioned to substantially seal a gap separating the shaft from the sleeve, so that the amount of particles and foreign matter that travel within or become trapped in the gap is substantially reduced. In another embodiment, a guard ring comprises a base portion having an inner perimeter and an outer perimeter, a first flange coupled to the inner perimeter, a second flange coupled to the outer perimeter, and a continuous channel separating the first flange from the second flange. The first flange is adapted to function as a spring that accommodates displacement of the shaft.